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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,104	01/07/2002	Robert Christopher Dixon	AUS9-2001-0814-US1	6894

47959 7590 12/14/2004

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EXAMINER	
CHEN, TSE W	
ART UNIT	**PAPER NUMBER**
2116	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/042,104	DIXON ET AL.	
	Examiner	Art Unit	
	Tse Chen	2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-11 and 13-20* is/are rejected.

7)☒ Claim(s) *3,12 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-3, 7 are objected to because of the following informalities:

- As per claim 1, "a device" and "the device" should be "the electronic device" to correspond with the antecedent established in the preamble.
- As per claims 2 and 7, "the least one extra cycle" should be "the at least one extra cycle".
- As per claim 3, "the a least one extra cycle" should be "the at least one extra cycle".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al., US Patent 6816961, hereinafter Rice, in view of Sawamura, US Patent 6553484.

4. In re claim 1, Rice discloses a method for performing clocked operations in an electronic device [col.2, ll.45-56], the method comprising the steps of:

- Performing, in an electronic device, first and second operations [sub-instructions] responsive to a timing clock having a primary frequency f, wherein the device is capable of performing the operations within X and Y cycles of the clock, respectively, and wherein X cycles of the clock correspond to a time interval T1 with the clock operating at the frequency f, and, accordingly, the device is capable of performing X/Y instances of

the second operation within time interval T1 with the clock operating at the frequency f [col.4, ll.5-26; first sub-instruction takes two cycles while second sub-instruction takes one cycle].

- Masking a certain effect for the second operation, so that instances of the second operation during the interval T1 remain no greater in number than X/Y [col.4, ll.5-26; stalling second sub-instruction so that instances remain no greater than original – e.g., 2].

5. Rice did not disclose explicitly generating at least one extra cycle of the clock to reduce performance time.

6. Sawamura discloses a method for performing clocked operations in an electronic device [abstract], the method comprising the steps of:

- Generating, during the time interval T1, at least one extra cycle of the clock, to selectively reduce performance time for the first operation [instruction] [col.1, ll.13-25].
- Masking a certain effect of the at least one extra cycle for the second operation, so that instances of the second operation during the interval T1 remain no greater in number than X/Y [col.5, l.43 – col.6, l.21; fig.6; even with speedup clock, second instruction is stalled until first instruction is in a ready condition so that the instances of second instruction remain no greater than original].

7. It would have been obvious to one of ordinary skill in the art, having the teachings of Rice and Sawamura before him at the time the invention was made, to modify the electronic device taught by Rice to include the generation of the at least one extra cycle of the clock taught by Sawamura, in order to obtain the claimed method, as the generation of the at least one extra cycle of the clock to reduce performance time is well-known in the art and suitable for use with

the electronic device of Rice [Sawamura: col.1, ll.13-25]. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to increase the processing speed [Sawamura: col.1, ll.13-25].

8. In re claim 10, Rice and Sawamura taught each and every limitation of the claim as discussed above in reference to claim 1. Claim 10 is directed to the apparatus implementing the method of claim 1. Rice and Sawamura taught the method as set forth in claim 1. Therefore, Rice and Sawamura also taught the apparatus as set forth in claim 10.

9. In re claim 19, Rice and Sawamura taught each and every limitation of the claim as discussed above. Examiner hereby takes Official Notice that it is well known in the art to implement a method or apparatus as a computer program product.

10. Claims 2, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rice and Sawamura as applied to claims 1, 10, and 19 above, and further in view of Menczes et al., US Patent 6563349, hereinafter Menczes.

11. Rice and Sawamura taught each and every limitation of the claims, as discussed above in reference to claims 1, 10, and 19. Rice and Sawamura did not discuss the details of generating the at least one extra cycle of the clock.

12. Menczes discloses a method, wherein a frist clock signal has frequency f [10 mhz] and a second clock signal has a frequency greater than f [60 mhz], and wherein generating the at least one extra cycle comprises selecting, during some of the time T1, the second clock signal for output as the timing clock [output 299] [fig.6; col.1, ll.58-65].

13. It would have been obvious to one of ordinary skill in the art, having the teachings of Menczes, Rice and Sawamura before him at the time the invention was made, to modify the

electronic device taught by Rice and Sawamura to include the teachings of Menczes, in order to obtain the claimed method. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to generate glitch free clock signals [Menczes: col.1, ll.14-55].

14. Claims 4-9 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menczes, Rice and Sawamura as applied to claims 2 and 11 above, and further in view of Trimberger et al., US Patent 6263430, hereinafter Trimberger.

15. In re claims 4 and 13, Menczes, Rice and Sawamura taught each and every limitation of the claims, as discussed above in reference to claims 2 and 11. Rice and Sawamura did not discuss the details of clocking a state machine.

16. Trimberger discloses a method, wherein a third clock signal [mc or fastest] has a frequency greater than the frequency of a second clock signal [fig.39a], the method comprsing clocking a state machine by the third clock signal [col.4, ll.16-23].

17. It would have been obvious to an ordinary artisan to utilize a third clock signal that has the greatest frequency of the three clocks to clock the state machine because Applicant has not disclosed an advantage, a particular purpose, or solution to a stated problem for utilizing the fastest third clock. Therefore, it would have been obvious to one of ordinary skill in the art to use the fastest third clock to clock a state machine as taught by Trimberger with the electronic device taught by Menczes, Rice and Sawamura to obtain the claimed method.

18. As to claims 5 and 14, Menczes discloses, wherein initiating the at least one extra cycle includes asserting an extra-clock-cycle initiating control signal [sleep signal] as an input to a state machine [to transition between sleep and active states] [col.7, ll.11-56].

19. As to claims 6 and 15, Trimberger discloses, the method comprising clocking an output register by the third clock signal [col.4, ll.16-23; col.25, l.60 – col.26, l.20].

20. As to claims 7 and 16, Examiner hereby takes Official Notice that it is well known in the art to initiate the at least one extra cycle by asserting an extra-clock-cycle-initiating control signal to an output register.

21. As to claims 8 and 17, Trimberger discloses, wherein an output register outputs the timing clock responsive to output signals of the state machine [col.4, ll.16-23; col.25, l.60 – col.26, l.20].

22. As to claims 9 and 18, Examiner hereby takes Official Notice that it is well known in the art to output a mask signal for masking the certain effect of an extra cycle responsive to output signals.

Allowable Subject Matter

23. Claims 3, 12, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. The following is a statement of reasons for the indication of allowable subject matter: the claims are allowable because none of the references cited, either alone or in combination discloses or renders obvious a method, apparatus, and computer program product with all the limitations as stipulated in claims 3, 12, and 21 with their associated base and intervening claims.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited U.S. patent documents describe various methods and systems associated with clocked operations along with various well-known attributes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (571) 272-3672. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
December 3, 2004

LYNNE H. BROWNE
SUPERVISORY PATENT EXAMINER
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